HOW TO DYNAMIC PROGRAMMING

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Step 1: Compute optimal haplotype set for every window, distinguishing strands

Candidate Haplotypes (S_{w,h_i}, S_{w,h_j})	Window 1	Window 2	Window 3	Window 4
	h_1, h_2, h_3	h_1, h_2, h_6	h_1, h_3	h_4, h_5, h_8
	h_4, h_5, h_6	h_5, h_7, h_8	h_1, h_5	h_4, h_6, h_8

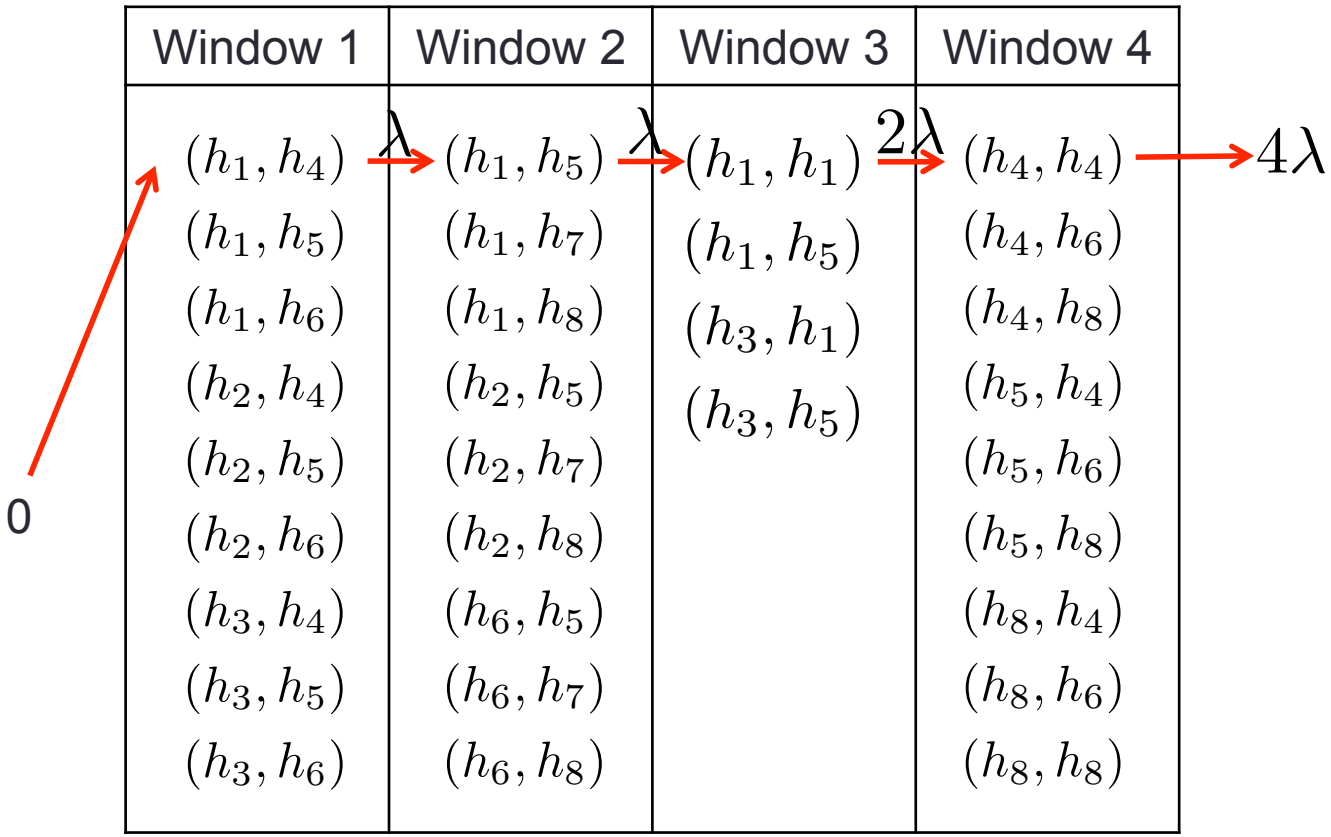
Step 2: For each window, compute all possible pairs

Window 1	Window 2	Window 3	Window 4
h_1, h_2, h_3	h_1, h_2, h_6	h_1, h_3	h_4, h_5, h_8
h_4, h_5, h_6	h_5, h_7, h_8	h_1, h_5	h_4, h_6, h_8

Possible pairs:

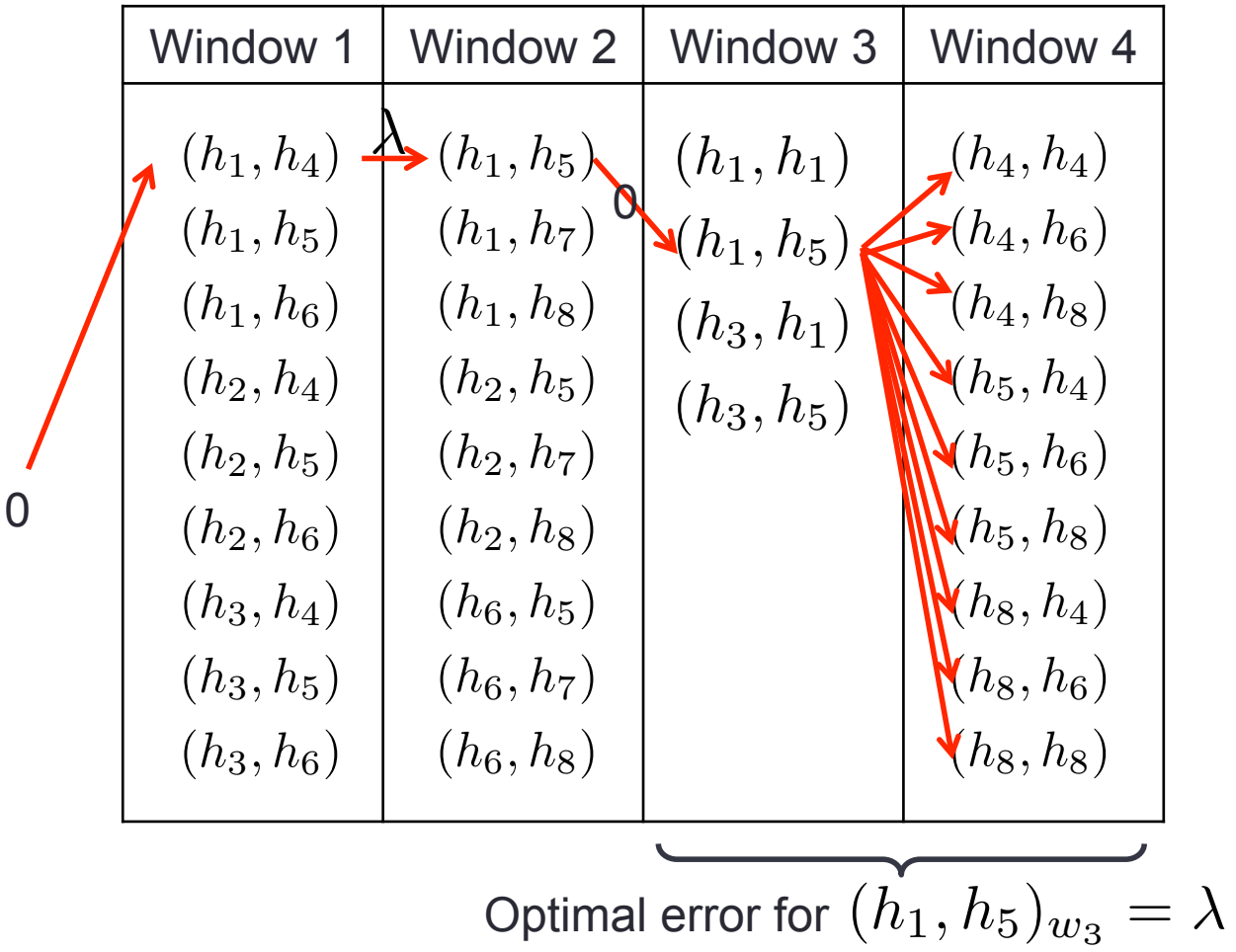
Window 1	Window 2	Window 3	Window 4
(h_1, h_4)	(h_1, h_5)	(h_1, h_1)	(h_4, h_4)
(h_1, h_5)	(h_1, h_7)	(h_1, h_5)	(h_4, h_6)
(h_1, h_6)	(h_1, h_8)	(h_3, h_1)	(h_4, h_8)
(h_2, h_4)	(h_2, h_5)	(h_3, h_5)	(h_5, h_4)
(h_2, h_5)	(h_2, h_7)		(h_5, h_6)
(h_2, h_6)	(h_2, h_8)		(h_5, h_8)
(h_3, h_4)	(h_6, h_5)		(h_8, h_4)
(h_3, h_5)	(h_6, h_7)		(h_8, h_6)
(h_3, h_6)	(h_6, h_8)		(h_8, h_8)

Step 3: Exhaustive search



Search all possible combinations will minimize haplotype switches.

Step 4: Memoization to avoid exponential search space



Store this result, so future searches do not have to recompute this sub-tree. Thus search space is *linear*